



Hovedkarakteristikk

Produktspekter	Modicon M221
Produkt eller komponent type	Logic controller
[Us] matespenning	100...240 V AC
Discrete input number	14 discrete input conforming to IEC 61131-2 Type 1
Antall analoge innganger	2 at input range: 0...10 V
Digitale utganger	Relè normalt åpen
Discrete output number	10 relé
Discrete output voltage	5...125 V DC 5...250 V AC
Diskrét utgangs strøm	2 A

Alternativer

Antall digitale I/O	24
Antall I / O-utvidelsesmodul	<= 7 for transistor output <= 7 for relay output
Spenningsgrenser	85...264 V
Nettverksfrekvens	50/60 Hz
Startstrøm	<= 40 A
Strømforbruk i VA	<= 58 VA på 100...240 V with max number of I/O expansion module <= 35 VA på 100...240 V without I/O expansion module
Power supply output current	0.52 A på 5 V for expansion bus 0.16 A at 24 V for expansion bus
Diskrét inngangs logikk	Sink or source (positive/negative)
Discrete input voltage	24 V
Discrete input voltage type	DC
Oppløsning analog inngang	10 bits
LSB verdi	10 mV
Omformingstid	1 ms per channel + 1 controller cycle time for analog inngang
Permitted overload on inputs	+/- 30 V DC for analog input med 5 min maximum +/- 13 V DC for analog input permanent
Garantert spenning = 1	>= 15 V for inngang
Voltage state 0 guaranteed	<= 5 V for inngang
Discrete input current	7 mA for discrete input 5 mA for fast input
Input impedance	4.9 kOhm for fast input 3.4 kOhm for discrete input 100 kOhm for analog input
Responstid	10 ms turn-on operation for utgang 35 µs turn-off operation for inngang; I2...I5 terminal 10 ms turn-off operation for utgang 5 µs turn-on operation for fast input; I0, I1, I6, I7 terminal 35 µs turn-on operation for input; other terminals terminal 5 µs turn-off operation for fast input; I0, I1, I6, I7 terminal 100 µs turn-off operation for input; other terminals terminal
Konfigurerbar filtrering tid	0 ms for inngang 12 ms for inngang 3 ms for inngang
Output voltage limits	125 V DC 277 V AC
Current per output common	4 A på COM 2 termnal 7 A at COM 0 termnal

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Absolute accuracy error	+/- 1 % of full scale for analog inngang
Elektrisk levetid	Induktiv AC-15, (cos phi = 0.35) 240 V/ 120 VA: 100000 sykluser Ohmsk DC-12, 24 V/ 48 W: 100000 sykluser Ohmsk AC-12, 120 V/ 240 VA: 100000 sykluser Induktiv AC-15, (cos phi = 0.35) 240 V/ 36 VA: 300000 sykluser Ohmsk AC-12, 120 V/ 80 VA: 300000 sykluser Inductive (L/R = 7 ms) DC-13, 24 V/ 24 W: 100000 sykluser Ohmsk DC-12, 24 V/ 16 W: 300000 sykluser Inductive (L/R = 7 ms) DC-13, 24 V/ 7.2 W: 300000 sykluser Induktiv AC-14, (cos phi = 0.7) 240 V/ 240 VA: 100000 sykluser Induktiv AC-15, (cos phi = 0.35) 120 V/ 60 VA: 100000 sykluser Induktiv AC-14, (cos phi = 0.7) 240 V/ 72 VA: 300000 sykluser Induktiv AC-15, (cos phi = 0.35) 120 V/ 18 VA: 300000 sykluser Ohmsk AC-12, 240 V/ 480 VA: 100000 sykluser Induktiv AC-14, (cos phi = 0.7) 120 V/ 120 VA: 100000 sykluser Ohmsk AC-12, 240 V/ 160 VA: 300000 sykluser Induktiv AC-14, (cos phi = 0.7) 120 V/ 36 VA: 300000 sykluser
Switching frequency	20 switching operations/minute with maximum load
Mekanisk levetid	>= 20000000 sykluser for relay output
Minimum belastning	1 mA at 5 V DC for relay output
Beskyttelsestype	Without protection at 5 A
Tilbakestillingstid	1 s
Minnekapasitet	256 kB for user application and data RAM with 10000 instructions 256 kB for internal variables RAM
Data sikkerhetskopieres	256 kB built-in flash memory for backup of application and data
Datalagring utstyr	2 GB SD card optional
Batteri type	BR2032 lithium non-rechargeable, battery life: 4 år
Backup time	1 year på 25 °C by interruption of power supply
Gjennomføringstid for en KInstruction	0.3 ms for event and periodic task
Gjennomføringstid per instruksjon	0.2 µs Boolean
Exct time for event task	60 µs response time
Maksimal størrelse på objektområder	512 %M memory bits 8000 %MW minneord 512 %KW konstante ord 255 %TM timers 255 %C counters
Sanntidsklokke	Med
Clock drift	<= 30 s/month på 25 °C
Reguleringssløyfe	Adjustable PID regulator up to 14 simultaneous loops
Counting input number	4 fast input (HSC mode) (counting frequency: 100 kHz), counting capacity: 32 bits
Styrestrøms type	A/B Pulse/direction Enkel fase
Integrert tilkoblingstype	USB port with connector mini B USB 2.0 ETHERNET with connector RJ45 Non isolated serial link "serial 1" with connector RJ45 and interface RS232/RS485
Supply	Serial serial link supply på 5 V 200 mA
Transmission rate	1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 15 m - communication protocol: RS485 1.2...115.2 kbit/s (115.2 kbit/s by default) for bus length of 3 m - communication protocol: RS232 480 Mbit/s - communication protocol: USB
Kommunikasjonsport protokoll	USB port: USB protocol - SoMachine-Network Non isolated serial link: Modbus protocol master/slave - RTU/ASCII or SoMachine-Network : Ethernet protocol
Port Ethernet	10 BASE-T/10 0BASE-TX 1 port med 100 m copper cable
Kommunikasjonsfunksjoner	DHCP-klient Ethernet/IP adapter Modbus TCP server Modbus TCP klient Modbus TCP slaveenhet
Lokal varslings	1 LED rød for module error (ERR) 1 LED grønn for PWR 1 LED grønn for RUN 1 LED grønn for SD card access (SD)

	1 LED rød for BAT 1 LED per channel grønn for I/O state 1 LED grønn for SL Ethernet network activity grønn for ACT Ethernet network link gul for Link (Link Status)
Elektrisk tilkobling	Mini B USB 2.0 connector for a programming terminal Tilkoplingsblokk, 3 terminal(s) for connecting the 24 V DC power supply Connector, 4 terminal(s) for analogue inputs Demonterbar blokk med skruklemmer for inputs Demonterbar blokk med skruklemmer for outputs
Kabellengde mellom enheter	Shielded cable: 10 m for fast input Unshielded cable: 30 m for output Unshielded cable: 30 m for digital input Unshielded cable: 1 m for analog input
Insulation	2300 V AC between output and internal logic Non-insulated between analogue inputs 500 V AC between input and internal logic Non-insulated between analogue input and internal logic 1500 V AC between supply and ground 500 V AC between sensor power supply and ground 500 V AC between input and ground 1500 V AC between output and ground 2300 V AC between supply and internal logic 500 V AC between sensor power supply and internal logic 500 V AC between Ethernet terminal and internal logic 2300 V AC between supply and sensor power supply
Merking	CE
Sensor power supply	24 V DC på 250 mA supplied by the controller
Monteringssupport	Top hat type TH35-15 skinne i samsvar med IEC 60715 Top hat type TH35-7.5 skinne i samsvar med IEC 60715 Plate or panel with fixing kit
Høyde	90 mm
Dybde	70 mm
Bredde	110 mm
Vekt	0.395 kg

Miljø

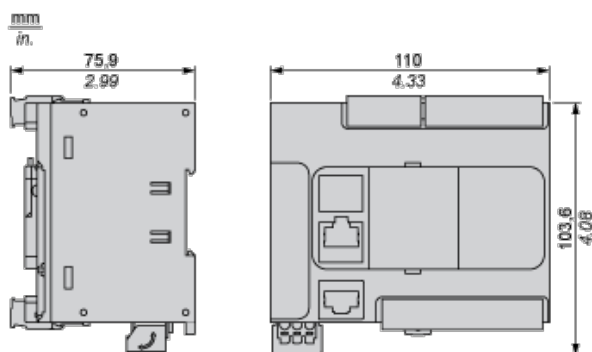
standarder	EN/IEC 60664-1 EN/IEC 61131-2 EN/IEC 61010-2-201
produktsertifikater	ABS CSA CULus LR IACS E10 RCM EAC DNV-GL
miljøegenskaper	Vanlig eller farlig lokasjon
motstand mot elektrostatisk utladning	4 kV on contact i samsvar med EN/IEC 61000-4-2 8 kV in air i samsvar med EN/IEC 61000-4-2
motstand mot elektromagnetiske felt	10 V/m (80 MHz...1 GHz) conforming to EN/IEC 61000-4-3 3 V/m (1.4 GHz...2 GHz) conforming to EN/IEC 61000-4-3 1 V/m (2...2.7 GHz) conforming to EN/IEC 61000-4-3
resistance to magnetic fields	30 A/m 50/60 Hz conforming to EN/IEC 61000-4-8
motstand mot raske transienter	2 kV for power lines conforming to EN/IEC 61000-4-4 2 kV for relay output conforming to EN/IEC 61000-4-4 1 kV for Ethernet line conforming to EN/IEC 61000-4-4 1 kV for serieforbindelse conforming to EN/IEC 61000-4-4 1 kV for I/O conforming to EN/IEC 61000-4-4
motstand mot spenningsvariasjon	2 kV for power lines (AC) i felles modul conforming to EN/IEC 61000-4-5 2 kV for relay output i felles modul conforming to EN/IEC 61000-4-5 1 kV for I/O i felles modul conforming to EN/IEC 61000-4-5 1 kV for shielded cable i felles modul conforming to EN/IEC 61000-4-5 0.5 kV for power lines (DC) i differential mode conforming to EN/IEC 61000-4-5 1 kV for power lines (AC) i differential mode conforming to EN/IEC 61000-4-5 1 kV for relay output i differential mode conforming to EN/IEC 61000-4-5 0.5 kV for power lines (DC) in common mode conforming to EN/IEC 61000-4-5
motstand mot ledningsbåret forstyrning, inkludert	10 Vrms (0.15...80 MHz) conforming to EN/IEC 61000-4-6 3 Vrms (0.1...80 MHz) conforming to Marine specification (LR, ABS, DNV, GL)

	10 Vrms (spot frequency (2, 3, 4, 6.2, 8.2, 12.6, 16.5, 18.8, 22, 25 MHz)) conforming to Marine specification (LR, ABS, DNV, GL)
elektromagnetiske utslipp	Conducted emissions conforming to EN/IEC 55011 power lines (AC), 0.15...0.5 MHz: 79 dBμV/m QP/66 dBμV/m AV Conducted emissions conforming to EN/IEC 55011 power lines (AC), 0.5...300 MHz: 73 dBμV/m QP/60 dBμV/m AV Conducted emissions conforming to EN/IEC 55011 power lines, 10...150 kHz: 120...69 dBμV/m QP Conducted emissions conforming to EN/IEC 55011 power lines, 1.5...30 MHz: 63 dBμV/m QP Radiated emissions conforming to EN/IEC 55011 class A 10 m, 30...230 MHz: 40 dBμV/m QP Conducted emissions conforming to EN/IEC 55011 power lines, 150...1500 kHz : 79...63 dBμV/m QP Radiated emissions conforming to EN/IEC 55011 class A 10 m, 200...1000 MHz : 47 dBμV/m QP
immunity to microbreaks	10 ms
omgivelsestemperatur for drift	-10...55 °C for horizontal installation -10...35 °C for vertical installation
omgivelsestemperatur for lagring	-25...70 °C
relativ fuktighet	10...95 % uten kondens under drift 10...95 % uten kondens in storage
IP-grad	IP20 with protective cover in place
Forurensninggrad	<= 2
operating altitude	0...2000 m
storage altitude	0...3000 m
Vibrasjonsmotstand	3,5 mm (vibration frequency: 5...8.4 Hz) på symetrisk skinne 1 gn (vibration frequency: 8.4...150 Hz) på symetrisk skinne 3,5 mm (vibration frequency: 5...8.4 Hz) på montering i panel 1 gn (vibration frequency: 8.4...150 Hz) on panel mounting
støtmotstand	98 m/s ² (test wave duration:11 ms)

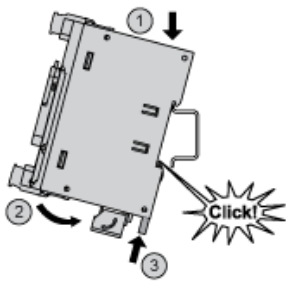
Bærekraftig

Bærekraftig	Green Premium produkt
RoHS (datokode: YYWW)	Compliant - since 1415 - Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold
Produktets miljøprofil	Tilgjengelig
Destruksjons-instruks	Tilgjengelig

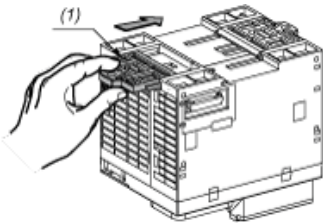
Dimensions



Mounting on a Rail

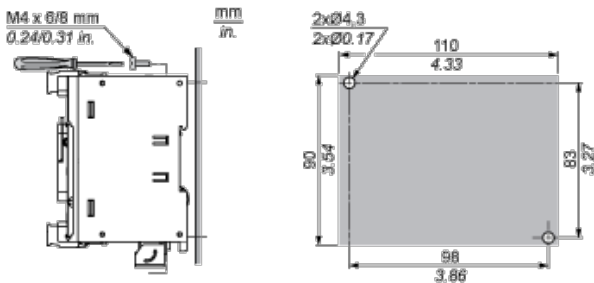


Direct Mounting on a Panel Surface



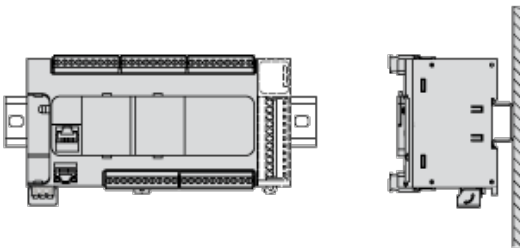
(1) Install a mounting strip

Mounting Hole Layout

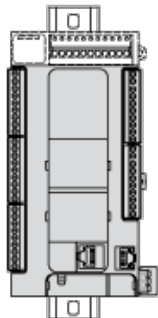


Mounting

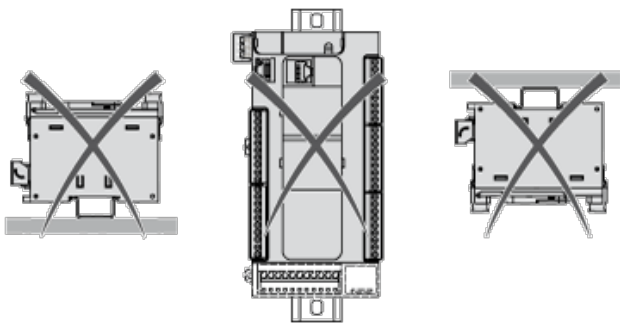
Correct Mounting Position



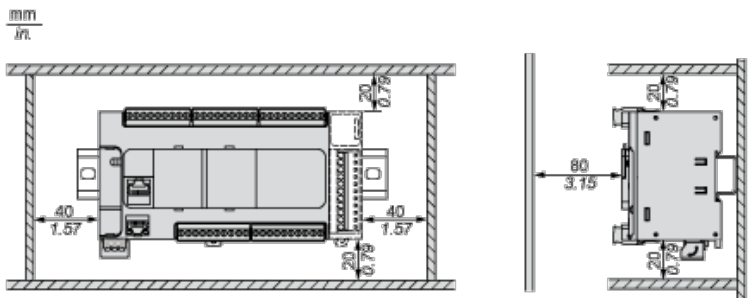
Acceptable Mounting Position



Incorrect Mounting Position

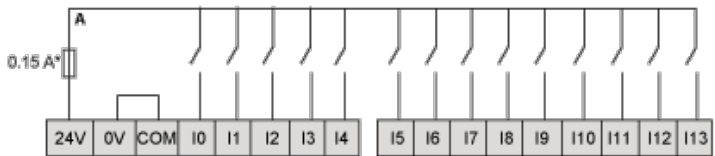


Clearance



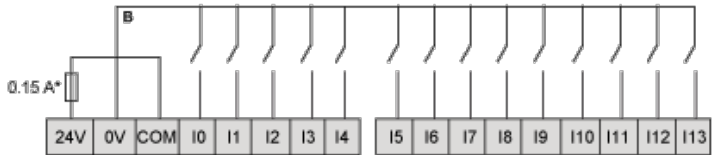
Digital Inputs

Wiring Diagram (Positive Logic)



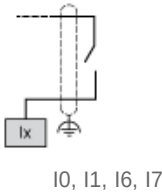
(*) Type T fuse

Wiring Diagram (Negative Logic)



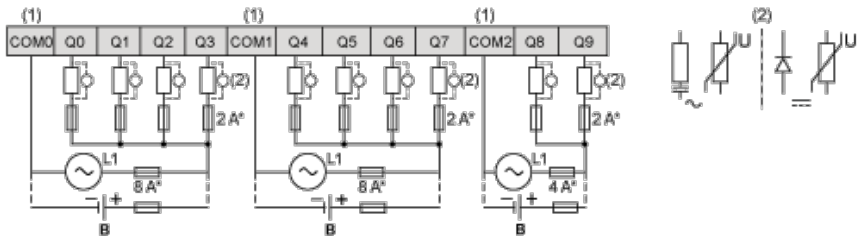
(*) Type T fuse

Connection of the Fast Inputs



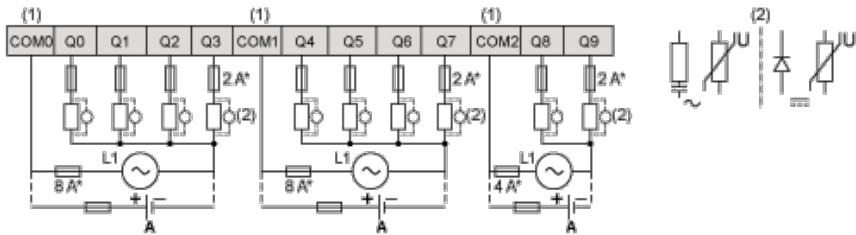
Relay Outputs

Negative Logic (Sink)



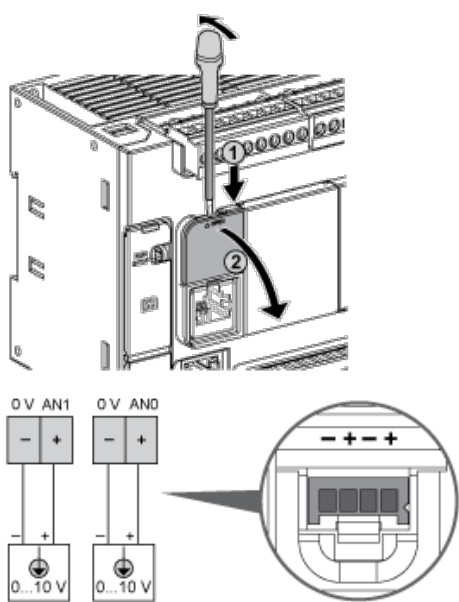
- (*) Type T fuse
 - (1) The COM0, COM1 and COM2 terminals are not connected internally.
 - (2) To improve the life time of the contacts, and to protect from potential inductive load damage, you must connect a free wheeling diode in parallel to each inductive DC load or an RC snubber in parallel of each inductive AC load
- B Sink wiring (negative logic)

Positive Logic (Source)



- (*) Type T fuse
 - (1) The COM0, COM1 and COM2 terminals are not connected internally.
 - (2) To improve the life time of the contacts, and to protect from potential inductive load damage, you must connect a free wheeling diode in parallel to each inductive DC load or an RC snubber in parallel of each inductive AC load
- A Source wiring (positive logic)

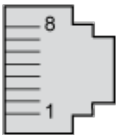
Analog Inputs



The (-) poles are connected internally.

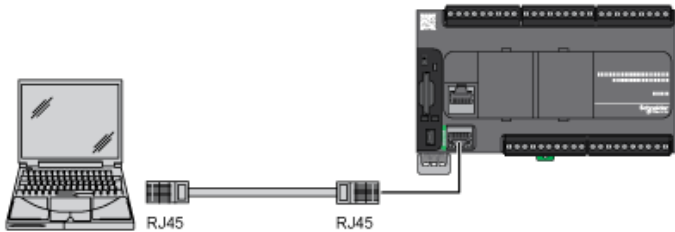
Pin	Wire Color
0 V	Black
AN1	Red
0 V	Black
AN0	Red

Ethernet Connection

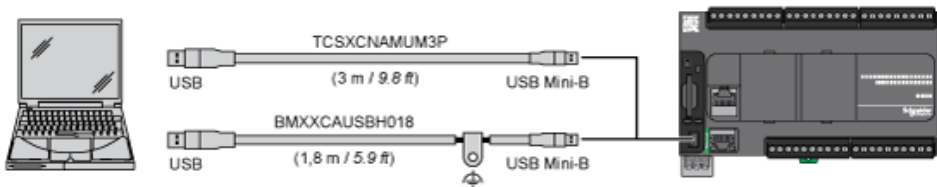


Pin N°	Signal
1	TD+

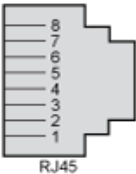
2	TD-
3	RD+
4	-
5	-
6	RD-
7	-
8	-



USB Mini-B Connection



SL1 Connection

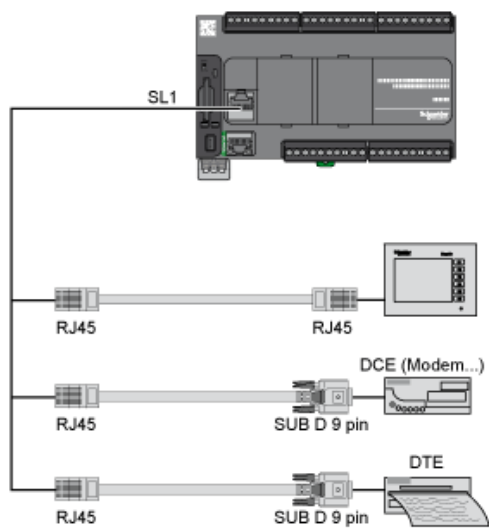


SL1

N °	RS 232	RS 485
1	RxD	N.C.
2	TxD	N.C.
3	RTS	N.C.
4	N.C.	D1
5	N.C.	D0
6	CTS	N.C.
7	N.C.*	5 Vdc
8	Common	Common

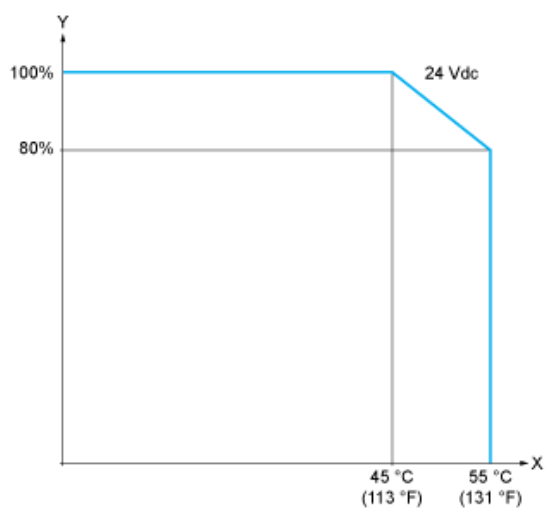
N.C.: not connected

* : 5 Vdc delivered by the controller. Do not connect.



Derating Curves

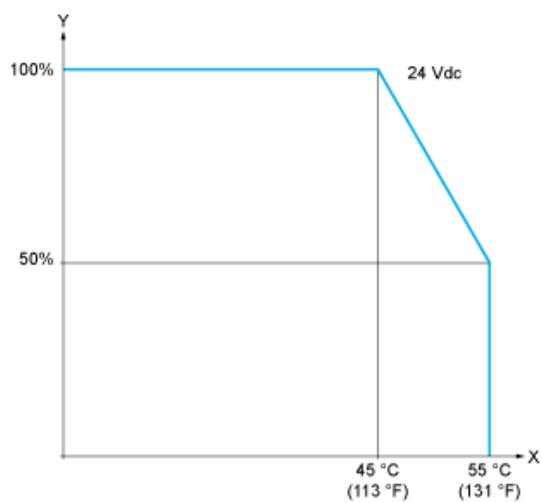
Embedded Digital Inputs (No Cartridge)



X : Ambient temperature

Y : Input simultaneous ON ratio

Embedded Digital Inputs (with Cartridge)



X : Ambient temperature

Y : Input simultaneous ON ratio